

# BUDDY RHODES™ REACTIVE POLYURETHANE SEALER INSTRUCTIONS



## ◆ INTRODUCTION -

**Buddy Rhodes™ Reactive Polyurethane Sealer** is a hybrid sealer combining the benefits of both reactive sealing technology and a water borne urethane sealer. This sealer provides excellent stain and abrasion resistance, requiring very little maintenance for years of quality service.

Before detailed instructions, let's cover some basics about sealers on concrete countertops and architectural objects in general. The conditions this sealer will see are as varied as the number of people that will put it to use. We have provided below some general guidelines about how to apply this sealer, but we fully expect this sealer to respond differently to all of the varied conditions it will face. We have done much testing of this sealer, over an extended period of time, and have seen it in used in various places in the country, and it is with positive results that we are presenting this sealer to the world. All of this leads to a very simple point: Test this sealer in your conditions!

Sealing concrete shouldn't be difficult or complicated. If you can make a pot of coffee, then you can seal your concrete. The process of sealing your concrete involves a series of basic steps. Each step should be performed with care and thoroughness. Skip a step or rush things and you won't get the results you expect. Follow the instructions and do a good job and you'll be rewarded. Before jumping into things go make yourself a cup of coffee, sit down and read through the instructions. Understanding what you need to do before you need to do it is a big first-step to being successful.

## TOOLS AND MATERIALS -

*You will need to round up some tools before you get started.*

Here is a list of things to have on hand:

- Small assorted measuring devices: something that will measure a few tablespoons (or milliliters).
- Quart/liter sized mixing containers
- Drill with mixing paddle for paints
- Multiple High Density Foam Rollers
- Towels
- Acetone
- Clean Water
- Timer

## ◆ STEP ONE: SURFACE PREPARATION -

Surface preparation before sealing is an important first step to ensure success with the sealer. You've spent a lot of time making a beautiful piece of concrete, so take a little bit more time to make sure the last and most important step goes right.

The condition your concrete needs to be in before sealing is straightforward and easy to achieve: It should be at least several days old after casting, it should be microscopically rough, clean and dry.

**CURING** - Concrete should be allowed to cure for several days after casting, following good concrete curing practices. This ensures the cement matrix is maturing and the internal moisture levels have been reduced to low levels. For some concrete mixes this happens in a few days, for others it will take longer; you will need to set the time between casting and sealing based on the habits of the concrete you are working with. With Buddy Rhodes mixes, 5 days following casting is a good start, although more time should be given during cooler periods, and more time is always better if you have time to give. For best results let your concrete cure for at least 1 week. **Summary: If you want the best results, give it time.** If you are in a rush, then don't expect the best results.

**PROFILE** - The surface of the bare concrete should be visually matte and microscopically rough. In other words, it should have a profile, or tooth, prior to sealing. This ensures the sealer develops a good mechanical bond with the surface. Before sealing, you want the concrete to have a matte finish, you don't want to see reflection in the surface, and the rougher the surface is, the better the sealer will adhere.

Profiling also removes superficial material or contaminants that would interfere with forming a good bond. Wax and form release agents routinely transfer to the surface of the concrete during casting, and these must be removed before sealing. There are several ways to profile the concrete: Etching, wet-sanding and finally honing.

**Etching** - Acid etching provides a 'tooth' for the sealer and dissolves any weak material in the substrate that may prohibit sealer from fully penetrating and adhering. Etching is most often performed on cream finishes, or concrete that's left untouched after it is demolded. Keep in mind acid etching mainly affects the cement paste, and will not change the surface of exposed glass, tile, or exposed stone such as quartz or granite. Etching may not entirely remove surface residue like wax or form release agents. For that we recommend light wet sanding.

**Wet Sanding** - A popular and easy way to lightly work the surface without exposing sand grains is to hand-sand the surface using wet/dry sandpaper. Use 400 grit paper, as coarser grit sandpaper can leave scratches and can be too aggressive. This kind of sandpaper is the black, silicon-carbide stuff used to wet sand automotive finishes. It's always used wet to prevent scratching the concrete surface, and it's a great way to remove surface residue and to lightly smooth the concrete's surface. A wet-sanded surface can be etched to further enhance the microscopic tooth.

**Honing** - Honing is often done to expose the sand grains to produce a salt and pepper finish, or, after the concrete has been ground to expose stone or glass aggregate. Either way it's vital the concrete is not highly polished to make it shiny.

**A honed surface is one that's been polished with diamonds to a grit no finer than 400 grit.** Anything finer will make the surface too smooth, and you run the risk of the sealer peeling off.

**CLEAN** - You'd never paint over dirt, so spend a moment cleaning the concrete before you seal. You want to do this after you've profiled the concrete, since etched, sanded or honed concrete has very fine residue that must be removed before sealing. Use a green scrubby pad to remove the fine residue and rinse well with clear water.

**DRY** - Finally, your concrete should be fully dry prior to applying sealer. Dry concrete lets the sealer penetrate into the concrete, whereas wet, damp or barely dry concrete won't.

Wait a minimum of 12 hours (overnight is better) for drying following saturation is a good rule of thumb. Remember, cooler shop temperatures slow evaporation, so if it's cool where you're sealing (say below 70°F or 21°C) give the concrete more time to dry out. When in doubt, give it a full day.

**ENVIRONMENT** - **RPS** is a moisture cured urethane that benefits from warm, humid conditions after the finish has been applied. Ideal temperatures for sealer application are between 65°-85°F (15.5°-32°C). Temperatures below 65°F will slow down evaporation and the cure time of the sealer. Temperatures above 85°F will increase the chance of the sealer flashing off quickly, usually resulting in roller marks.

Moisture and humidity plays an important role with the sealer. Because the sealer is diluted with water, it's important that the moisture from Priming and Finish Coat application dries out between applications. Until the water that's in the freshly applied sealer has evaporated, the urethane won't begin to fully crosslink (cure).

Humidity levels during and after sealing should be above 40% relative humidity (50% - 65% is ideal) and stay that way for at least 3-4 days. Humidity levels can be increased to aid and speed curing by using a humidifier or by wetting the floor and running a fan to help evaporate the water and increase the humidity levels.

## ◆ STEP TWO: MIXING -

The sealer is applied in two stages: the first stage is a primer and the second stage is the finish coat. Multiple primer and finish coats are applied, depending upon the degree of protection required.

The sealer has 3 parts: A, B, and C. **It is important that these 3 parts need to be combined in a specific order. Note that all parts are measured by volume.**

Take your time through this step of the process in order to achieve the best results, and **follow the timing instructions exactly. Use a timer for each step.**

**Note:** Mix only what you need to use for each stage:

**Primer** - You should be able to mix one batch of primer and apply two coats before the pot life expires (more on this below).

**Finish**- Because more time is required after priming and between finish coats, only mix enough sealer for one finish coat at a time.

# 1. MIXING URETHANE COMPONENTS - PARTS A AND B

**Step 1:** Gently agitate Part A for 1 minute. This is not a violent shaking, rather gently swirl the material around in the bottle to ensure everything is homogeneous. This is not necessary with Part B.

**Step 2:** Measure and add 3 parts of A to 1 part of B and mix with a drill on low speed for 2 minutes. Use the timer for this activity. This gives you "1 Part Urethane".

**IMPORTANT:** Clean the bottle threads and cap of Part B thoroughly with a paper towel saturated with acetone. Any Part B left on the threads will harden and cause the cap to become stuck.

**Step 3:** Allow this blend to rest for 7 minutes prior to moving on.

# 2. BLENDING THE URETHANE AND REACTIVE COMPONENTS - THE BLEND OF A+B TO PART C

The proportions of A+B and C depend on whether you are mixing up primer for a non-color-enhancing look, primer for a color-enhancing, or the finish coat. In all cases, you must mix with a drill on low speed for 1 minute. Gently agitate Part C for 1 minute before measuring and mixing.

## ***Primer Application, Non-Color-Enhancing (3-4 applications):***

- 1 part urethane (part A and B combined)**
- 3 parts C**
- 4 parts water**

## ***Primer Application, Color-Enhancing (3-4 applications):***

- 1 part urethane (part A and B combined)**
- 7 parts water**

## ***Finish Application (1-3 coats):***

- 1 part urethane (part A and B combined)**
- 3 parts C**

Once you have finished mixing for 1 minute, your mixture is immediately ready to apply to the concrete.

The sealer has a usable pot life of about 45 minutes to 1 hour after mixing (depending upon ambient temperature). Do not use any sealer that is 1.5 hours old regardless of its appearance. **Periodically re-mix any sealer that has sat for more than 5 minutes to keep all the ingredients in suspension.**

# ◆ STEP THREE: APPLICATION -

## 1. PRIMER APPLICATIONS

You will notice that there are 2 formulas above for the primer. You can choose to enhance the color of the concrete, or maintain the color as it is. Choose which method you prefer for the application, and follow the mixing directions for that application.

### ***Primer Application Technique:***

Saturate the surface of the concrete, using a high-density foam roller, spread the sealer across the entire surface until it is fully covered. Liberally spread the sealer around the surface to fully wet and saturate the concrete. Be sure not to let the sealer puddle or dry out, because this will result in splotches.

Maintain enough sealer on the surface, and continue to roll the material gently, so that the surface remains evenly wet.

**-For the first Primer Application, keep the surface wet for 10 minutes.**

**-For the second Primer Application, keep the surface wet for 5 minutes.**

**-Additional Primer Applications will be rolled on thin, keep the surface wet for about 1 minute.**

Continuous rolling helps work the sealer into the surface and into any pinholes that may remain

Avoid leaving puddles of material on the surface, if excess material needs to be removed and evened out use a gloved hand, squeeze out excess sealer from the roller into a bucket, then use the roller to soak up excess sealer that remains on the surface. Keep rolling continuously leaving a thin film of material on the surface to dry.

At first you'll use more pressure to soak up excess sealer, but as less and less sealer remains on the surface you reduce the pressure until only the weight of the roller is applied. Rolling with too much pressure can force excess material out of the roller causing drips, puddles, foam or lines in the finish. If any of this happens simply lightly back roll until the marks disappear. The surface should remain looking wet and shiny, but should be free of foam, roller marks, drips or puddles of excess sealer. Once you stop rolling the very thin film of wet finish should flow out to be even and smooth.

Usually you will not need to squeeze out any more excess sealer from the roller, but if the roller becomes saturated, you may need to squeeze it out again.

You will apply Primer Applications with this method, each usually within 30 minutes of each other. The second application can be done as soon as the first application has dried for 15-20 minutes. Often this takes about 10 to 20 minutes depending upon ambient temperatures. Do not wait longer than 40 minutes between Primer applications.

You will have the best results with your sealer if you use a fan to gently blow air over the surface to speed drying between applications.

**Wait at least 1 hour before proceeding with the finish application.** Priming using highly-diluted sealer pumps a great deal of moisture into the concrete, and it's important to let this moisture evaporate before applying your finish coats. Good practice is to be patient and wait longer (2-3 hours). Do not wait longer than 24 hours between applications. If this occurs you must thoroughly scuff-sand the surface with 400 grit sandpaper and remove all sanding residue before applying the next applications.

You may direct a fan to gently blow air over the sealer in order to speed drying. Be careful not to blow dust or debris into the sealer.

## 2. FINISH APPLICATION

**The finish is applied the same way as the primer,** except each coat of finish needs to be kept wet for only about 1 minute instead of 5 or 10 minutes. This is because the finish does not need to soak in like the primer.

### *Finish Application Technique:*

Pour a small amount of the sealer onto the concrete, and using a new high-density foam roller, spread a generous amount of sealer across a small area of the surface until it is fully covered. Depending upon your shop conditions and the pace you prefer to work at, a roughly 2-foot width is a good sized section to start with. It's best to work from one end of a slab and gradually proceed along its length. This minimizes the length of sealer's wet edge, preventing drying that could lead to roller marks.

The finish coat application is slightly different from the process used for priming. During priming, the entire surface was coated with a generous application of primer. However, using this same technique for the finish coat on larger pieces of concrete may result in an unsatisfactory appearance. This is because as one end of the piece is being back rolled, the far end will start to dry out before it can be back rolled and this can result in roller marks and surface texture. So to prevent this, work in smaller sections and proceed from one end of the piece to the other, back rolling each section before advancing to the next. This way a fresh, wet edge is maintained and the newly applied and back rolled finish blends seamlessly into the previous section.

For each section, keep the surface wet for about 30 seconds to 1 minute. Continuous rolling helps work the sealer into the surface and into any pinholes that may remain. Do not let the finish dry out at all, or streaks may occur.

Using a gloved hand, squeeze out excess sealer from the roller into a clean container, then use the roller to soak up excess sealer that remains on the surface. Repeat. Alternatively, use a second roller only for back rolling. Keep rolling continuously until the surface is smooth, bubble free but remains glossy wet.

At first you'll use more pressure to soak up excess sealer, but as less and less sealer remains on the surface you reduce the pressure until only the weight of the roller is applied. Rolling with too much pressure can force excess material out of the roller causing drips, puddles, foam or lines in the finish. If any of this happens simply lightly back roll until the marks disappear.

Backroll until there is a very thin film of sealer left on the surface. A good visual cue is that when you begin backrolling, the texture of the wet sealer is bumpy from the roller and from small bubbles that burst. As you continue to remove more material the small bubbles disappear and the bumpy texture gets finer and finer, looking a lot like the surface of melamine. The surface should remain looking wet and shiny, but should be free of foam, roller marks, drips or puddles of excess sealer. Once you stop rolling the very thin film of wet finish should flow out to be even and smooth within about 1-2 seconds.

It's often useful to use a dry, lint-free shop towel or microfiber cloth to blot excess sealer from the roller during your final backroll. This helps achieve the very thin wet film that is necessary for getting a good finish.

Wait 1 to 2 hours between each finish coat application. Good practice is to be patient and wait longer. Do not wait longer than 24 hours between applications. If this occurs you must thoroughly dry scuff-sand the surface with 220 grit sandpaper and remove all sanding residue before applying the next coat.

RPS, like many water-borne urethanes, must dry in order for it to begin cross-linking, which is critical for achieving the stain and scratch resistance it offers. Moisture in the concrete, and moisture in previous coats of sealer will slow curing, as will cold and damp shops.

A fan may be used to speed the drying process. Make sure dust or debris does not get blown onto the fresh sealer.

The number of finish coats depends on the stain resistance required for a project. This usually ranges from 1 to 3 applications: 1 coat for objects that will see light use and no or mild staining agents, 3 coats for objects that will see high use and exposure (kitchens, for example). Be aware that fewer than 3 coats can allow moisture to penetrate into the concrete. Darkening from moisture is often temporary and will dissipate over time.

## ◆ NOTES

**Part B:** This component is moisture-sensitive, and residue left on the threads and cap after pouring will cure into a hard, very strong adhesive. This can make removing the cap difficult or nearly impossible without damaging the bottle or the cap. It's strongly recommended to wipe the lip and threads of the bottle, and the inside threads of the cap with a clean paper towel or cloth wetted with acetone. The cap, threads and bottle lip must be completely clean and free of any Part B residue in order to prevent the cap from becoming glued onto the bottle.

**- It is normal for the surface to feel slightly tacky or gummy for about 24 to 48 hours after sealing. Cold, dry environments extend the length of time the sealer remains gummy, while warm, humid environments help the sealer cure to a hard finish sooner. Ideal curing conditions are above 70°F (21°C) and 50% humidity.**

- When applied in ideal conditions, sealer can see light use in 36 hours, and will be durable in 72 hours.

***Danger ::*** Do not spray this sealer through HVLP or other spray equipment. This sealer contains isocyanates which are powerful irritants. The risk of isocyanate exposure exists only during application and mainly from direct skin contact with uncured sealer. There are no residual isocyanates once the sealer is cured.

In the event that cured sealer needs to be removed from the concrete, off-the-shelf paint stripper (not paint thinner) has been found to be effective and efficient at removing the urethane film from the concrete's surface. Multiple applications may be necessary, as there are different formulations and concentrations of paint strippers available. Always follow the manufacturer's instructions regarding personal safety, application, cleanup, and responsible disposal methods, etc.



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